**ABSTRACT**

With the rising use of ARM RISC Based CPU Architecture on several industrial and day to day devices and the continued reliance on automatic Computer Vision Systems that are currently in operation in many industries worldwide, this research focuses on the Development of a Hybrid ARM and FPGA based Face Detection System powered by the OpenCV computer vision library. The FPGA fabric can be used for future continued research in the development of an accelerated OpenCV library in order to maximize its efficiency. This research investigates that the Hybrid ARM and FPGA System on a Chip driven by Linux the open source operating system and the OpenCV Computer Vision Library is a potential platform for future Computer Vision Applications.